

vibrating element at a first frequency selected in conjunction with the configuration of the vibratory element and its mounting to cause a selected contacting portion of the vibrating element to move in a first path with sufficient amplitude to move a driven element in a first direction when the selected contacting portion engages the driven element during use, the driver circuit providing a single first signal to the vibrating element; and

the driver circuit providing a second signal to the vibrating element to drive the vibrating element at a second frequency selected in conjunction with the configuration of the vibratory element and its mounting to cause the selected contacting portion of the vibrating element to move in a second path with sufficient amplitude to move the driven element in a second direction when a second selected contacting portion engages the driven element during use;

wherein the first and second electrical signals are communicated through the same electrical conductor to the piezoelectric element.

40. (Once Amended) The apparatus of Claim 36, wherein every cross-section of the resonator perpendicular to the second axis is the same from and including the sidewalls to but not including the selected contacting portion.

### **REMARKS**

The Applicants thank the Examiner for the interview held March 24, 2003, at which time the cross-sectional shape of the resonator was discussed.

In the last Office Action, the Examiner has allowed Claims 1, 3-8, 12-13, 16-19 and 21. Claims 25-35 were withdrawn pursuant to a restriction requirement. The remaining pending Claims 22-24 and 36-41 were rejected. In this amendment Claims 22-35 and 39 are deleted, and the remaining rejected claims are amended. Reconsideration and allowance is respectfully requested.

#### **I. RESTRICTION & ELECTION**

The Applicant elects the Claims of Group 1. The non-elected claims 25-35 are deleted.

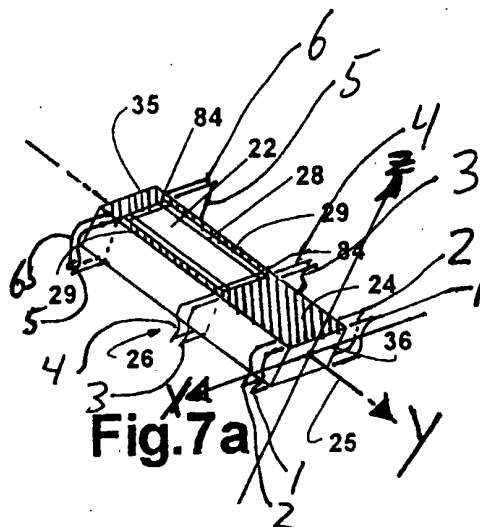
#### **II. SECTION 112 REJECTIONS**

The section 112 rejections of Claims 22-24 are not addressed as those claims are deleted.

Claims 36-41 were rejected because "the second selected contacting portion" in Claim 36, line 18, lacked antecedent basis; "the" was changed to "a" in order to provide antecedent basis.

These amendments do not narrow the claims but merely make more definite that which was already in the claim. Reconsideration and withdrawal of the Section 112 rejections is respectfully requested.

In Claims 39-40, the examiner was unclear about what was meant by "every cross-section of the resonator - is the same but not including. ..." This feature from Claim 39 is incorporated into independent Claim 36. Claim 39 is deleted and Claim 40 amended to delete overlapping subject matter. Figure 7a is marked up here to show a mechanical resonator that is formed in the shape of an elongated member having a longitudinal axis Y. A second axis Z is perpendicular to the longitudinal axis. Every cross-section of the resonator perpendicular to the second axis falls in the X-Y plane, and every cross-section in that plane is the same. This excludes the selected contacting portion w which may be contoured to conform to the shape of the driven element.



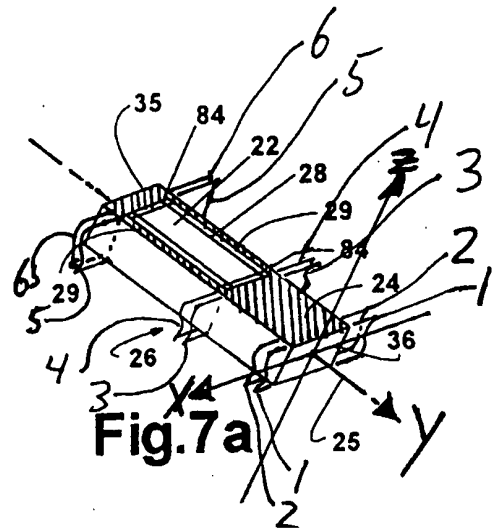
The claim is believed to be understandable by one skilled in the art, and to be supported by the specification, including Fig. 7a. Reconsideration and withdrawal of the Section 112 rejection of Claims 36 and 40 are respectfully requested.

### III. SECTION 103(a) REJECTIONS OF CLAIMS 22-24 & 38-40:

Claims 22-24 and 39 are deleted so those rejections will not be discussed.

Claims 38-40 were rejected as obvious over Motegi (Fig. 2), Morizaki (Figs. 5 & 10) or Okuno (Fig. 9) in view of Yourinaga, Isaysma or Mason. The first three patents were cited to show the capacitance of a piezoelectric motor used in an L-C resonant circuit, and the last three patents were cited to show drive circuitry placed on the piezoelectric element or on a common support with the piezoelectric element. To this combination, the Examiner makes the further modification of using a single piece of wire to form the inductor and connector lead.

Claim 38 depends from Claim 36. Claim 36 is amended to contain features found in prior Claims 39-40. These claims define a resonator with an opening to contain the piezoelectric element and with every cross-section of the resonator perpendicular to a second axis being the same. As discussed above in Section II, and referring to a marked up Fig. 7a of the application, shown here, the second axis Z is perpendicular to the longitudinal axis Y. Every cross-section of the resonator perpendicular to the second axis is the same from and including the sidewalls to but not including the selected contacting portion (i.e., the shaped contacting portion).



That construction is not found in the references cited by the Examiner to reject Claims 39-40. That construction and the resulting combination are not suggested by the asserted patents. The Examiner is requested to reconsider and withdraw the rejection to claims 36-38 and 40 which now define these aspects.

#### IV. SECTION 102 REJECTION OF CLAIMS 36, 37 & 41

Claims 36, 37 and 41 were rejected as anticipated by Kato or Honda. Features from dependent Claim 39 are incorporated into independent Claim 36 and are discussed above. Those features are not found in Honda or Kato. Reconsideration and withdrawal of this rejection is respectfully requested.

#### V. ATTORNEY OF RECORD

The last Office Action was not mailed to the undersigned. The undersigned is the attorney of record to which correspondence is to be mailed, pursuant to an assignment from Siemens to Elliptec, and power of attorney by assignee Elliptec, copies of which were mailed in this application on August 9, 2001, and recorded at Reel 012087 and Frame 0049. If the Examiner's records indicate otherwise, please contact the undersigned so we can straighten it out.

## VI. CONCLUSION

All remaining claims are believed to be in a condition for allowance and such allowance is respectfully requested. If the Examiner has any questions, please contact the undersigned in order to resolve any matters over the phone and to pass the application to issuance.

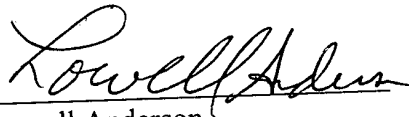
Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with markings to show changes made".

If any additional fee is required, please charge Deposit Account Number 19-4330.

Respectfully submitted,

Date: 3/31/03

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**Version With Markings to Show Changes Made**

Please delete Claims 22-35 and 39.

36. (Once Amended) A piezoelectric driver apparatus for controlling the operation of a vibrating element having a mechanical resonator with a selected contacting portion for contacting a driven element, apparatus comprising:

only one piezoelectric element having an inherent capacitance and driving the mechanical resonator, the mechanical resonator being formed in the shape of an elongated member having a longitudinal axis and a second axis perpendicular thereto, and further being formed to have an opening defined by sidewalls and containing the piezoelectric element therein, and wherein every cross-section of the resonator perpendicular to the second axis is the same;

at least one switching element allowing the application of a predetermined signal;

at least one electrical resonator driver circuit driving the vibrating element, wherein the driver circuit is electrically coupled to and activated by the switching element to drive the vibrating element at a first frequency selected in conjunction with the configuration of the vibratory element and its mounting to cause a selected contacting portion of the vibrating element to move in a first path with sufficient amplitude to move a driven element in a first direction when the selected contacting portion engages the driven element during use, the driver circuit providing a single first signal to the vibrating element; and

the driver circuit providing a second signal to the vibrating element to drive the vibrating element at a second frequency selected in conjunction with the configuration of the vibratory element and its mounting to cause the selected contacting portion of the vibrating element to move in a second path with sufficient amplitude to move the driven element in a second direction when a [the] second selected contacting portion engages the driven element during use;

wherein the first and second electrical signals are communicated through the same electrical conductor to the piezoelectric element.

40. (Once Amended) The apparatus of Claim 36, **[wherein the mechanical resonator is formed in the shape of an elongated member having a longitudinal axis and a second axis perpendicular thereto, and further formed to have an opening defined by sidewalls and**

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**containing the piezoelectric element therein, and]** wherein every cross-section of the resonator perpendicular to the second axis is the same from and including the sidewalls to but not including the selected contacting portion.